SOCIETÀ COOPERATIVA

BILANCIAI

Terminal D410

CE

Use, maintenance and installation manual

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12. SAFETY INSTRUCTIONS FOR THE INSTALLER

⚠ CAUTION ⚠

The information and instructions contained in this section are addressed exclusively to installation personnel who must have specialised knowledge in the fields of electrical and electronic engineering and programming.

A number of the operations described herein require the removal of legal seals and the opening of the terminal casing.

Furthermore, certain operations can be only performed when the terminal is connected to the electrical power supply.

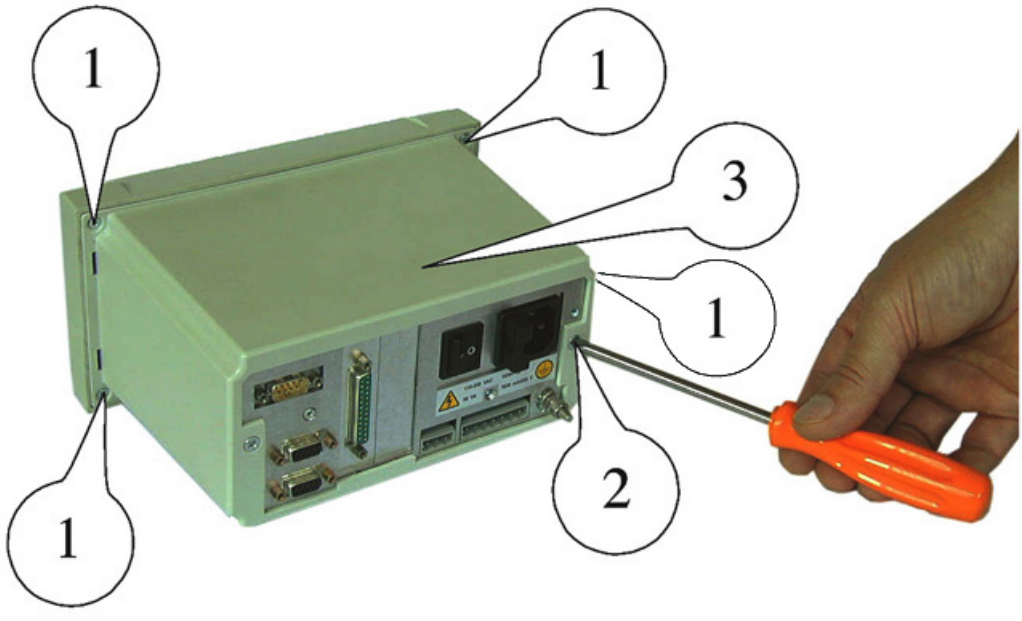
In this condition, some of the exposed electrical components will be live and consequently there is a risk of electric shock.

Any dismantling or opening of the terminal by the user or any other unauthorised person shall immediately invalidate the warranty and release the Manufacturer from all liability for any personal injury or damage sustained.

Also consult the "Safety instructions" " chapter of the user manual.

13. OPENING THE TERMINAL

13.1 Opening the outer casing



Key

1. casing screws
2. casing and seal screw
3. plastic casing

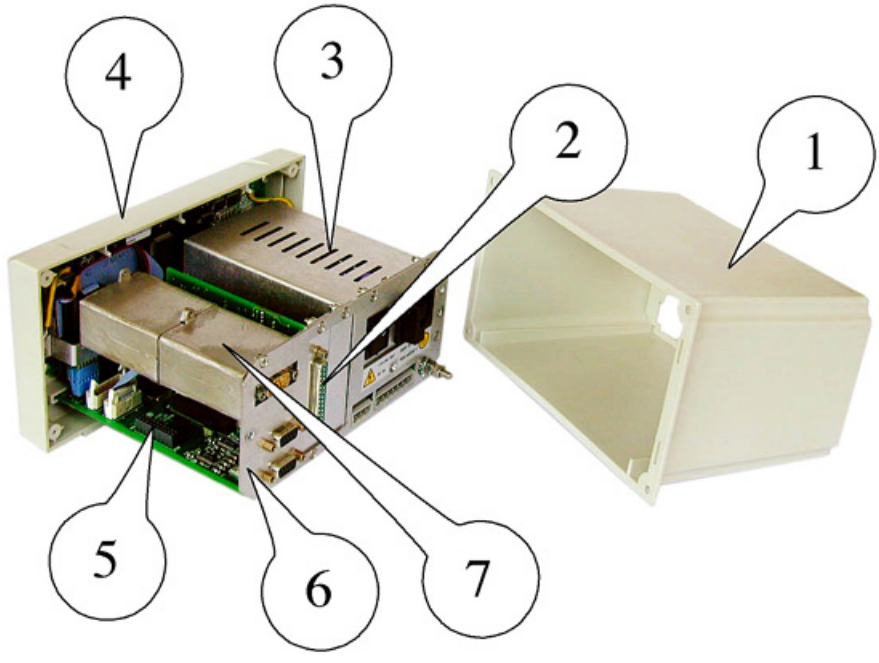
Figure 13.1 - Opening the terminal *(log0106.jpg)*

✔ Unplug the mains lead connector, the platform scale connector and any other connections;

✔ Remove the six screws indicated in *fig. 13.1 on page 3-7* (points 1 and 2. One of the screws is not visible in the figure);

✔ Remove the plastic casing.

13.2 Main parts of the terminal



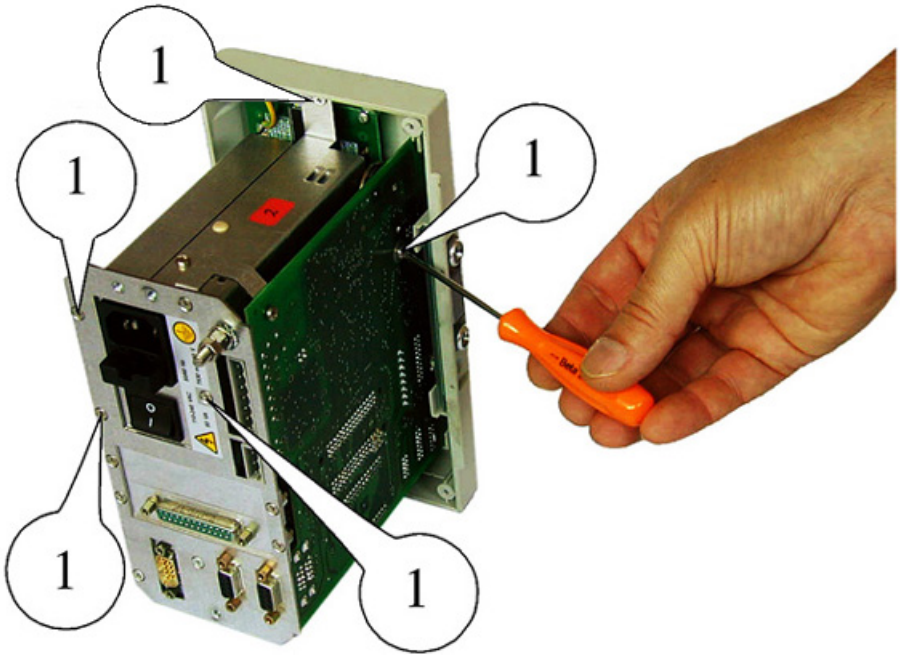
Key

1. Plastic casing
2. Slots for optional boards
3. Power supplier
4. Display
5. MPP
6. CPU
7. Converter for analogue terminal

The converter in digital terminals has no cover (*fig. 13.5 on page 3-11*)

Figure 13.2 - Main parts of the terminal *(log0107.jpg)*

13.3 Removal of the power supplier

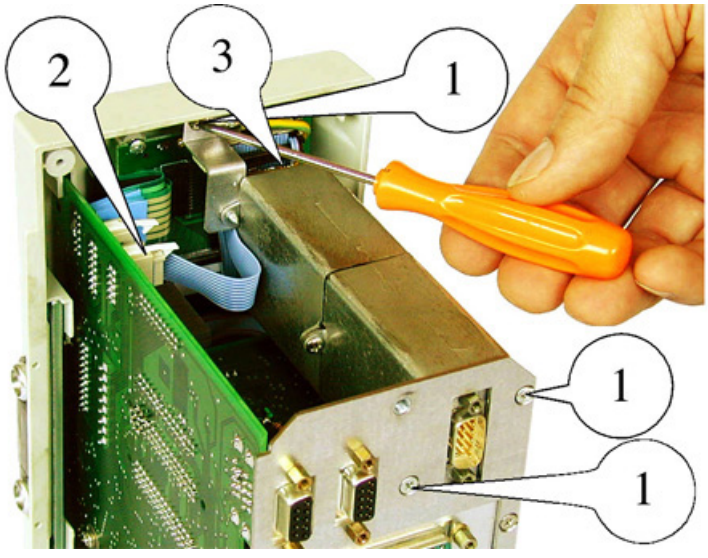


Key

1. screws

Figure 13.3 - Removal of the power supplier *(log0108.jpg)*

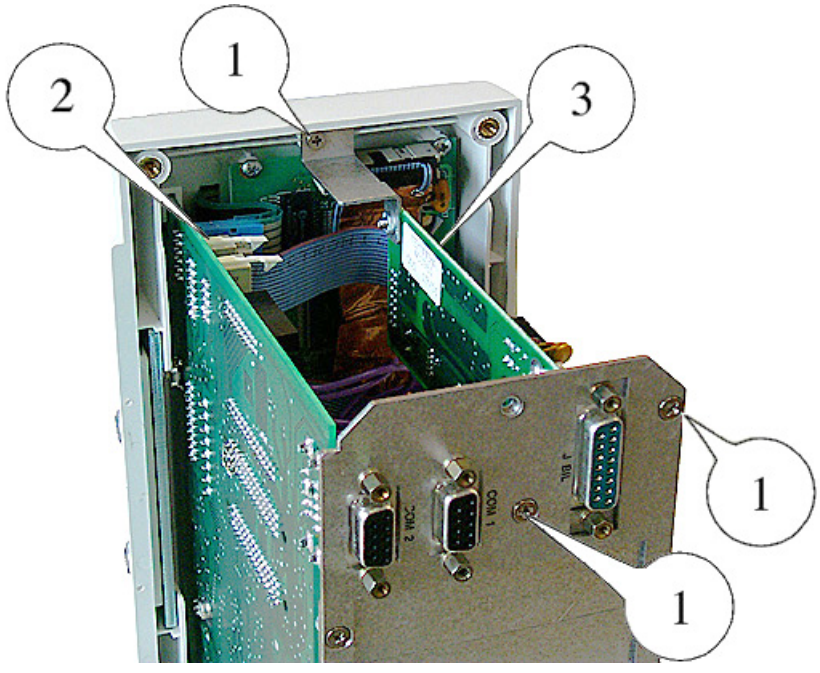
13.4 Removal of the converter



Key

1. screws
2. connector on CPU
3. connector on converter (obscured in photo)

Figure 13.4 - Analogue terminal converter demounting *(log0111.jpg)*

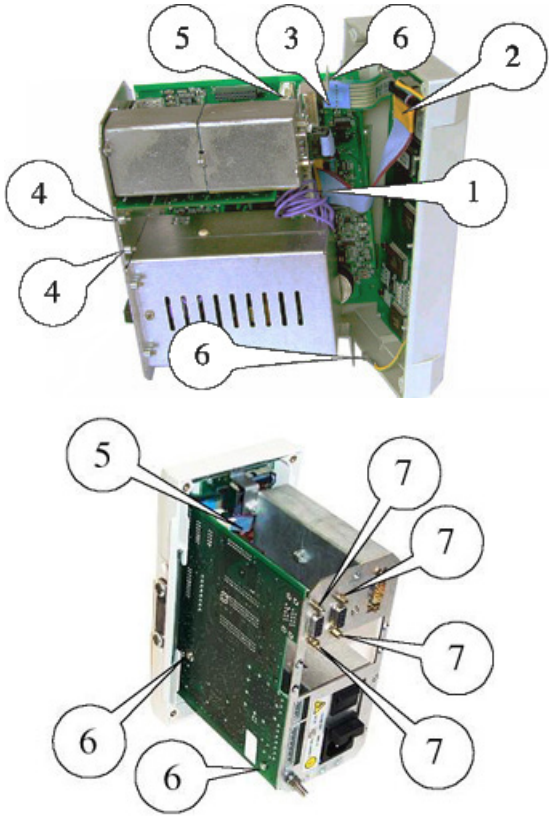


Key

1. screws
2. connector on CPU
3. connector on converter (obscured in photo)

Figure 13.5 - Digital terminal converter demounting *(citi0202.jpg)*

13.5 Removal of the CPU



Key

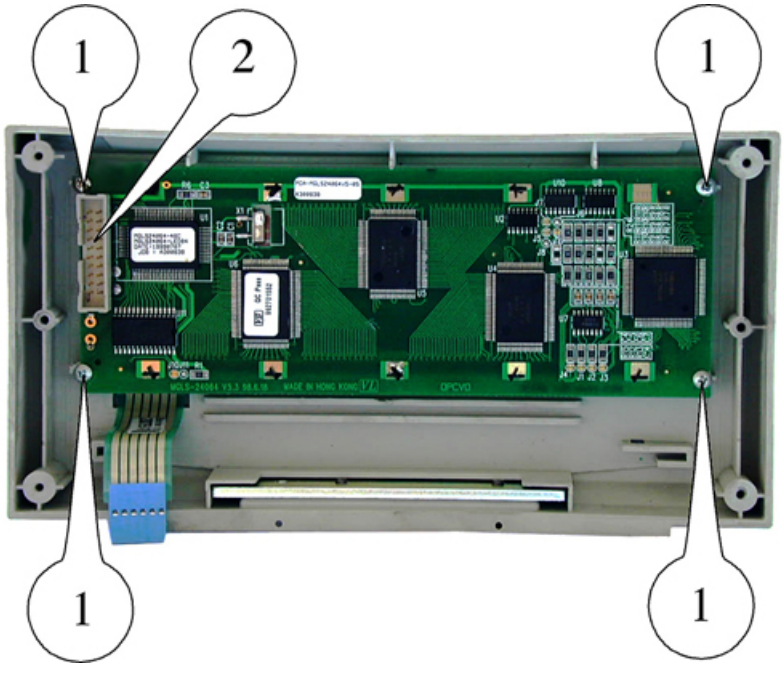
1. power supplier connector
2. display connector
3. keypad connector
4. optional boards
5. converter connector
6. screws
7. screw posts on D-type connectors

Figure 13.6 - Removal of the CPU *(log0112.jpg)*

To remove the CPU board, proceed as follows:

- ✔ remove any optional boards from slots 1 and 2 (*fig. 13.10 on page 3-17*);
- ✔ disconnect the connectors (points 1, 2, 3, 5 of *fig. 13.6 on page 3-12*);
- ✔ unscrew the screws (points 6 of *fig. 13.6 on page 3-12*) and screw posts (points 7 of *fig. 13.6 on page 3-12*).

13.6 Removal of the display

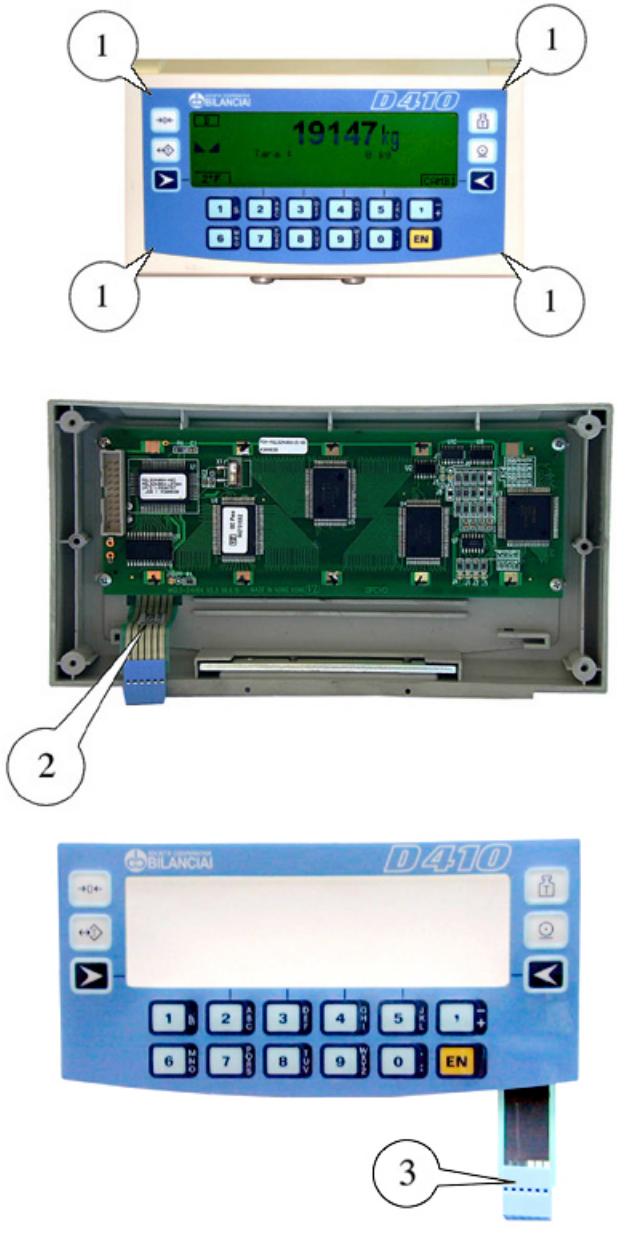


Key

1. screws
2. display connector

Figure 13.7 - Removal of the display *(log0113.jpg)*

13.7 Replacing the keypad



Key

1. leverage points
2. slot for display connector
3. keypad connector

Figure 13.8 - Replacing the keypad *(log0132.jpg)*

- ✔ Apply leverage using a screwdriver, for example, at points 1.
- ✔ Unstick the keypad.
- ✔ Remove all glue residue with alcohol.
- ✔ Take care not to get alcohol anywhere other than the contact surfaces and take care not to damage the seal labels. Allow the contact surface to dry.
- ✔ Insert the connector in slot 2 and stick the keypad down, positioning it carefully in the centre of its housing.

13.8 Replacing the lithium battery

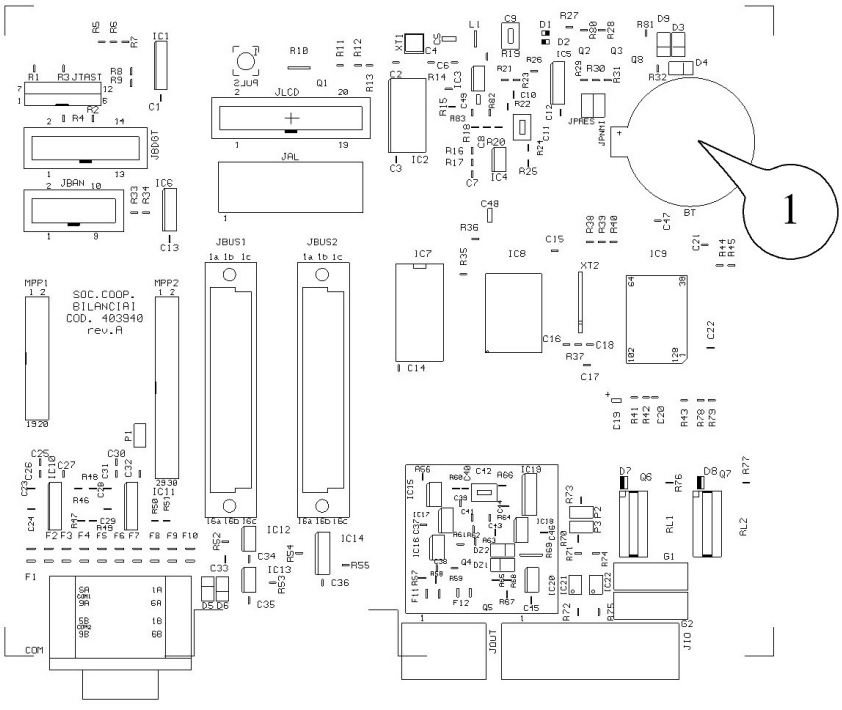
To replace the lithium battery proceed as follows:

- ✔ switch off the terminal and disconnect the mains lead;
- ✔ open the terminal as indicated in *par. 13.1 on page 3-7* ;
- ✔ remove the power supplier (*par. 13.3 on page 3-9*);
- ✔ reconnect the mains lead and switch the terminal on (the battery must be replaced when the terminal is powered on to prevent loss of data);
- ✔ remove the battery from the battery holder (point 1 *fig. 13.9 on page 3-16*);

⚠ DANGER ⚠

Take care not to cause short-circuits between the metal components.

- ✔ fit a charged battery. Only use a lithium CR2045 battery;
- ✔ dispose of the old battery in accordance with applicable regulations. Do not dispose of it improperly.

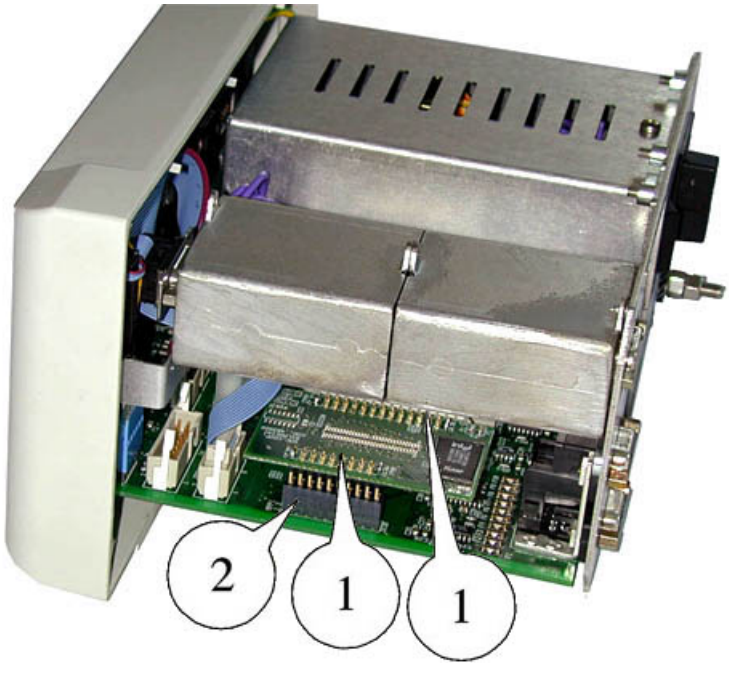


Key

1. lithium battery

Figure 13.9 - Position of the lithium battery on the CPU board
(log0150.gif)

13.9 Installing the MPP board



Key

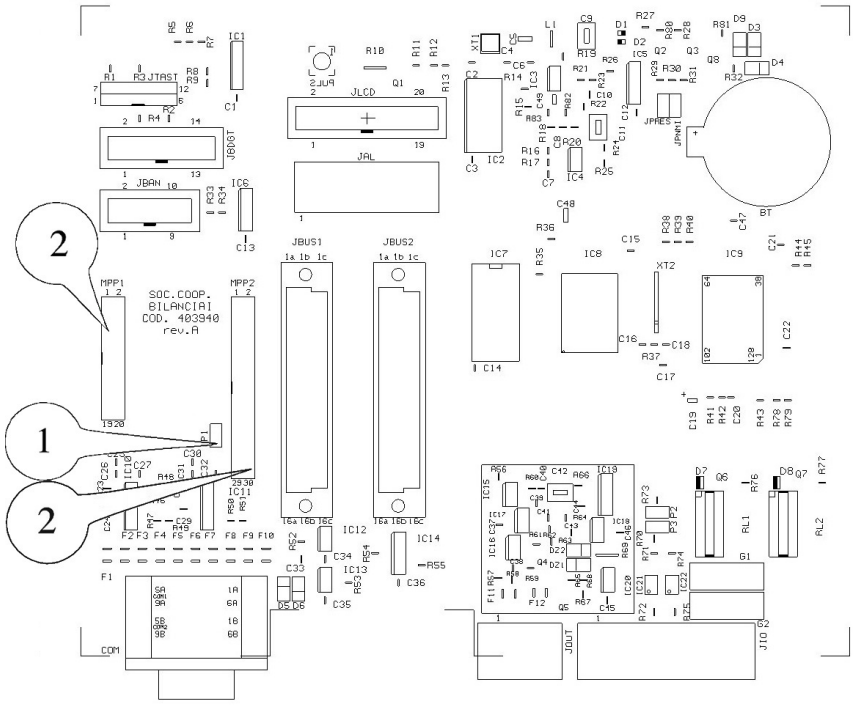
1. connectors on MPP board
2. connector on CPU board (the other connector is not visible in the figure)

Figure 13.10 - Installing the MPP board *(log0117.jpg)*

✔ Make sure that jumper P1 on board CPU is connected;

✔ Centre board MPP on the connectors.

Consult *fig. 13.11 on page 3-18* where the connectors on the CPU board are more clearly shown.



Key

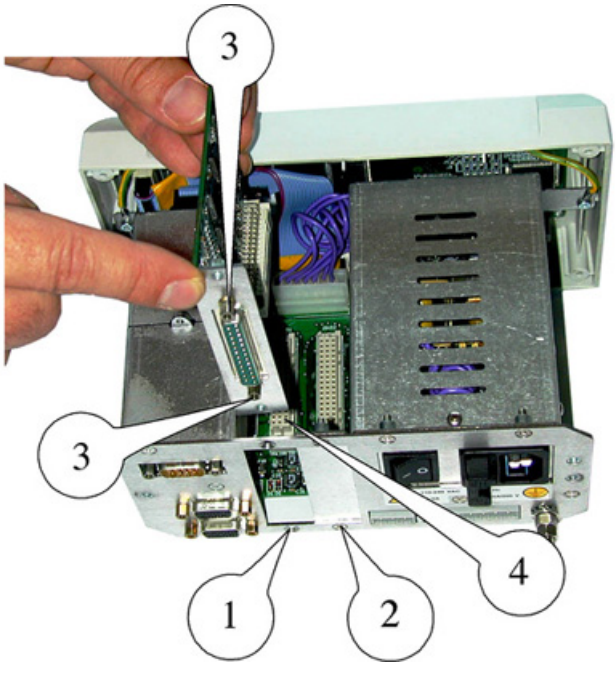
1. Jumper P1
2. Connectors for the MPP board

Figure 13.11 - CPU board *(log0152.gif)*

13.10 Installing optional boards

Optional boards may be inserted in any of the slots provided. On switching the terminal back on the software will automatically detect and identify the type of board (plug & play).

Refer to the Options chapter of the user manual for the output codes.



Key

1. slot 1
2. slot 2
3. fixing screw
4. connector on CPU

Figure 13.12 - Installing the optional board *(log0120.jpg)*

13.11 Installing the optional 4 I/O board

Insert the board as shown in *fig. 13.12 on page 3-19* .

Personalize the parameters that refer to the I/O (see Personalization chapter of the advanced user manual).

Refer to the Options chapter of the user manual for the connections.

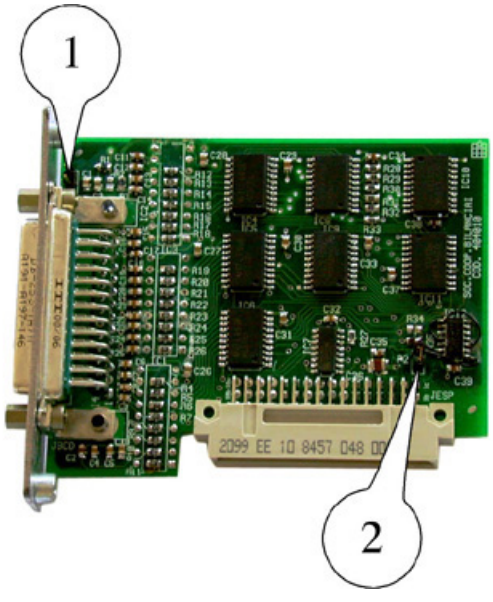
13.12 Installing the optional serial ports board

Insert the board as shown in *Figure 13.12 on page 3-19* .

Personalize the serial port parameters (consult Personalization chapter of advanced user manual).

See Options chapter of the user manual for the connections.

13.13 Installing the optional BCD parallel 5V-calculator board



Key

1. jumper P1
2. jumper P2

Figure 13.13 - Personalizing the BCD parallel 5V-calculator board *(log0121.jpg)*

Jumpers

P1 on pin 25 i +5V.

Should be connected to the first terminal in IDC systems. It is generally disconnected. For special applications refer to the specifications.

P2 identifies the board type.

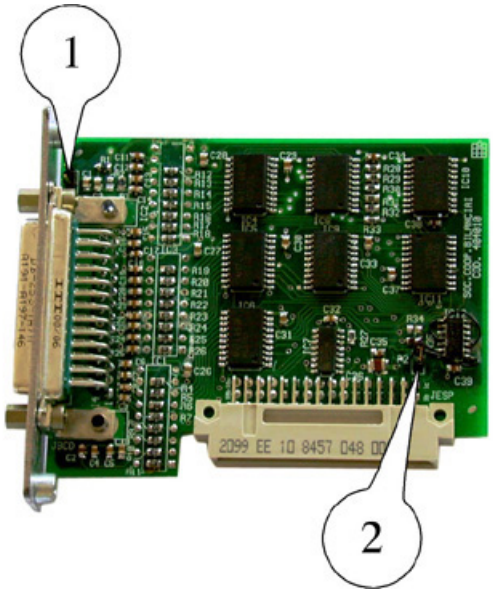
Connected for BCD 5V-calculator output in number of divisions.

Disconnected for BCD 5V multiplied output.

Personalize the relative parameters (see Personalization chapter of advanced user manual).

See Options chapter of the user manual for the connections.

13.14 Installing the optional BCD parallel 24V-source board



Key

1. jumper P1
2. jumper P2

Figure 13.14 - Installing the BCD parallel 24V-source board
(log0121.jpg)

Jumpers

P1 permanently disconnected

P2 permanently disconnected

Personalize the relative parameters (see Personalization chapter of advanced user manual).

See Options chapter of the user manual for the connections.

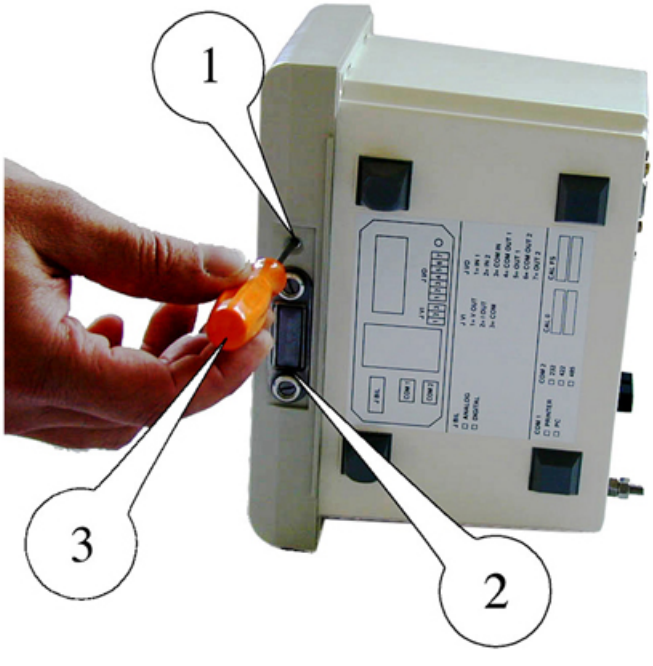
14. PERSONALIZING METROLOGICAL PARAMETERS

The terminal setup procedure can be accessed in two different ways.

✔ By pressing on power up (as explained in the Personalization chapter of the advanced user manual) it is possible to access non-metrological parameters. In this way, the metrological parameters can be displayed but not modified.

✔ With the terminal switched on, after removing the seals, by pressing the calibration button (see *par. 14.1 on page 3-23*) it is possible to modify all the parameters, both metrological and non-metrological.

14.1 Calibration button



Key

1. access hole for calibration button
2. seal label area
3. pointed instrument

Figure 14.1 - Accessing the setup procedure by way of the calibration button *(log0123.jpg)*

If you access the setup procedure by pressing the calibration button it is possible to modify all the terminal parameters.

The correct procedure is as follows:

- ✔ remove the seals from the terminal (lead or labels) (point 2 *fig. 14.1 on page 3-23*);
- ✔ switch on the terminal;
- ✔ press the calibration button using a non-metallic pointed instrument (point 3 *fig. 14.1 on page 3-23*) through the access hole (point 1 of *fig. 14.1 on page 3-23*);
- ✔ select the menu display language; a few terminal identification messages will be displayed briefly (program code, version, serial number) immediately followed by the Setup menu.

On exiting Setup, the display language selected in the personalization menu will be restored.

WARNING

Access to setup parameters by way of the calibration button is restricted to specialised personnel only.

Any tampering by unauthorised personnel shall invalidate the warranty with immediate effect.

The main metrological parameters are described in the following paragraphs. For personalization of non-metrological parameters refer to the Personalization chapter of the advanced user manual.

14.2 Description of the main menus and metrological parameters

Unless different indications are given, the description of the parameters illustrated in the following paragraphs is valid for both analogue and digital scales.

Consult *par. 14.3 on page 3-41* for a description of the slave menus and parameters.

14.2.1 Setup Menu/Scale/Configurations/Metrological

Scale	**analogue, digital, repeater**
Legal	**NO, YES**
Unit of measurement	**kg, g, t, lb**
	If you select a different unit of measurement from that previously set, the terminal will not convert the unit of measurement. In this case it will be necessary to recalibrate the scale using sample weights of the selected unit of measurement.
Ranges	**SINGLE, TWO MULTIDIVISION, TWO MULTIEXTENSION, THREE MULTIDIVISION, THREE MULTIEXTENSION**
Division	**0.001, 0.002, 0.005, 0.010, 0.020, 0.050, 0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50**
	Minimum division value expressed in the selected unit of measurement. When selecting this value, bear in mind the number of decimal places to be displayed. Shows the division of the last field in the case of MD and ME instruments.
capacity	**editor**
1st range capacity	**editor**
2nd range capacity	**editor**

No. of divisions for stability signal	**0, 1, 2, 4**
	Defines the number of divisions by which the weight may vary while the weight stable signal is maintained. On terminals subject to metrical verification, this parameter must be set to 0 (zero) or 1.
high resolution	**YES, NO**
	High resolution operating parameter. This function is useful for weighing tests and scale calibration, as it allows the weight reading to be displayed in tenths of a division. It is not enabled during normal terminal operation. It is used primarily during scale testing.
zero track	**0e, 0.25e, 0.5e, 1e**
	Defines the range around zero within which zero tracking is performed to small gradual variations in the weight reading, caused, for example, by dust settling on the scale. ✔ For dosing systems, set the parameter to 0 (zero) ✔ When zero tracking is disabled by selecting 0 (zero), the forced zero function is also automatically disabled. This applies even if the forced zero parameter is set to a value other than 0 (zero).

forced zero	**0e, 0.5e, 1e, 1.5e, 2e**
	Defines the range around zero within which forced zero setting will be performed on scale unloading or in the presence of a weight stable signal. "Scale unloading" refers to the moment when the weight falls below the minimum weighment value. On terminals subject to metrical verification, this parameter must be set to 0 (zero).
Tare device	**Activated**
	It is possible both to set the tare both through acquisition of the weight on the scale or by entering a tare value directly from the keypad.
	Auto-tare only
	It is only possible to set the tare through acquisition of the weight on the scale; tare values may not be be entered from the keypad.
	Preset only
	Tare values may be set from the keypad only, not by acquisition of the weight on the scale.
	De-activated
	Tares may not be set either through acquisition of the weight on the scale or by entering a tare value directly from the keypad.
Multiple tares	**No,1,2**
	Indicates the number of additional tares relative to the acquired tare and the tare entered from the keypad. "No" indicates no additional tares. For more detailed information also consult the Use of the terminal chapter of the user manual (Tare and preset tare display).

14.2.2 Setup Menu/ANALOGUE scale/Analogue scale parameters

Conversion rate	**100, 50, 25, 12, 6, 3, 1**
	Defines the number of conversions performed per second by the A/D converter.

14.2.3 Setup Menu/DIGITAL scale/Digital scale parameters

N. of load cells	**Editor**
	Number of cells in the system
Baud rate	**19200, 38400, 115200**
	Serial link transmission speed

14.2.4 Setup Menu/Scale/Calibration/Execute

The scale calibration operation consists of calibration of the terminal; this operation is necessary in all those cases where it is not possible to calibrate the scale during the production process or in the event of replacement of mechanical or electronic parts.

The calibration procedures have been developed to meet the practical requirements of the different situations that may arise.

Standard calibration	This is the procedure recommended for the majority of weighing systems. This procedure requires the use of sample weights or a known weight. Use sample weights of a suitable precision for the accuracy class and capacity of the terminal.
	Zero full scale
	Used for linear weighing systems. Requires a sample weight for calibration of the full scale value. The procedure is as follows: ✔ check that there are no weights on the scale; ✔ press *EXECUTE* to perform the zero calibration; ✔ using the option *CHANGE*, enter the full scale weight value (corresponding to the value of the sample weight) (to enter the numeric value consult the Use of the terminal chapter of the user manual); ✔ place the sample weight on the scale; ✔ press *EXECUTE* to calibrate the full scale value.

	Linearized at one point, Linearized at two points
	In systems which are non-linear, in addition to zero and full scale calibration, you can also calibrate intermediate points which are valid for both the rising and falling sides of the actual weight/measured weight curve. For linearized calibration at least 2 sample weights are required: the first for calibration of the intermediate point, and a second for calibration of the full scale value. For 2-point linearized calibration, at least 3 sample weights are required: the first for calibration of the first intermediate point, a second for calibration of the second intermediate point, and a third for calibration of the full scale value. The procedure (indicated by on-screen instructions) is the same as that used for Zero Full scale calibration, except that in this case more points are to be calibrated.

	Hysterisis correction at one point, Hysterisis correction at two points
	In systems which present a hysterisis, in addition to zero and full scale calibration, you can also calibrate different intermediate points for the rising and falling sides of the actual weight/measured weight curve. At least 2 sample weights are required for 1 point hysteresis correction, one to calibrate the 1st intermediate point, the other to add to the first to calibrate the full scale value. The down-scale is calibrated by removing the weights in reverse order. At least 3 sample weights are required for two point hysteresis correction, one to calibrate the 1st intermediate point, the second to add to the 1st to calibrate the 2nd intermediate point and the third to add to the first two to calibrate the full scale value. The down-scale is calibrated by removing the weights in reverse order. The procedure (indicated by on-screen instructions) is the same as that used for Zero Full scale calibration, except that in this case more points are to be calibrated.

Zero calibration	Zero calibration is necessary in those cases where the scale has been previously calibrated, but on switching the terminal the zero is found to have shifted; this may occur when the pre-tare value used for the original calibration is not known, or when an exceptional load is present on the scale. No sample weights are required for this operation. The procedure is indicated by on-screen instructions.
Reverse calibration	Reverse calibration may be useful in certain cases where it is difficult to load or unload a known weight from the weighing device, such as for example in hopper or dosing systems. The procedure is indicated by on-screen instructions.

14.2.5 Setup Menu/Scale/Calibration/Display data

Refer to the Personalization chapter of the advanced user manual.

14.2.6 Setup Menu/Scale/Calibration/Correction

This option enables you to correct the calibration without having to repeat the entire procedure.

Depending on the data available, the correction can be calculated in different ways, as explained below.

Weight	**Editor**
	If the weight is known, the correction can be entered directly. The value entered must lie within the range: - (Capacity/100) < Weight < + (Capacity/100)
Gravity	**Editor**
	place of calibration
	On selecting **Campogalliano** (headquarters of the Manufacturer) the gravitational acceleration value of Campogalliano (9.80552 m/s) is entered automatically), otherwise it is possible to enter a gravitational acceleration value within the range (9.60000 to 10.00000) m/s.
	place of use
	As the gravitational acceleration of the place of calibration is known, in order to calculate the weight correction value it is also necessary to know the gravitational acceleration of the place of use. You can enter a value within the range (9.60000 to 10.00000) m/s. Alternatively, you can enter the **Coordinates** of the place of use: **latitude** (0 to 90)° and **altitude** (-1000 to +9000) m. On the basis of these data, the program will calculate the weight correction and enter the value obtained in the parameter **Weight** .

14.2.7 Setup Menu/DIGITAL scale/Calibration/Angle calibr.

Angle calibration is used to correct digital cell assembly errors, constructional tolerances, etc.

To carry out the angle calibration operation, the sample weight (not necessarily known) must be loaded in sequence into each digital cell.

Progressive calibration (1, 2, , n)	The weight and weighing symbols initially appear on the display. Remember that angle calibration usually occurs before sampling, thus the weight value that appears on the display is not real but only indicative of the fact that there is something on the scale. Proceed in the following way: ✔ unload the scale and press *READY*; after 30 seconds (the time required for the scale to stabilize) the positions of the digital cells in the system will appear on the display. Each digital cell is represented by a rectangle and an identification number. The empty rectangles indicate cell stability. If they are not addressed, the cells will be arranged in sequence without identification number. This display remains for the time required to acquire the minimum dead load of all the cells and then returns to the normal weight display. ✔ Load the sample weight on cell 1 when the *Load the cell 1* indication appears on the display; ✔ press *READY* to acquire the sample weight value. After this, the cell positions in the system are displayed again. This display remains for the time required to acquire the weight on all cells when cell 1 is loaded with the sample weight;

	✔ repeat this procedure for all the cells in the system, complying with the instructions supplied by the terminal. Once angle calibration has been carried out for all the cells, the value of the calculated angular coefficient will be displayed alongside the identification number of each individual cell. The angular coefficient values are within the 0.995 ÷ 1.005 range. ✔ Press *SAVE* to memorize the angular coefficients in the terminal and cells. Even if the value of only one of the angular coefficients is beyond the range specified above, the letter *e* will appear alongside the incorrect angular coefficient value and the following message will appear on the terminal *Out of range! Continue?* Press *REPEAT* to repeat the angular coefficient calculations.
Calibration by side (1, 3, , 4, 2)	The instructions given for progressive calibration are also used in this case, the only difference being the order in which the cells must be loaded with the sample weight.

Replace 1 cell	It may be necessary to replace a cell in the system. In this case, the angular coefficient can be calculated for the replaced cell without having to calibrate all the other cells. Proceed in the following way: ✔ unload the scale and press *READY*. The cells appear on the display arranged in sequence and without identification numbers. This display remains for the time required to acquire the minimum dead load. ✔ Load the sample weight on the replaced cell when requested by the terminal and press *READY* to acquire its value; ✔ load the sample weight on the cell diametrically opposite the replaced one when requested by the terminal and press *READY*. The terminal will calculate the angular coefficient for the replaced cell. ✔ Press *SAVE* to record the angular coefficient in the terminal and cell. There terminal will indicate if the angular coefficient value is beyond the tolerated limits. In this case, press *REPEAT* to repeat the calculations. ✔ Switch off the terminal.

14.2.8 Setup Menu/DIGITAL scale/Test

Angular coefficient	The following information is given alongside the identification number of each individual cell: ✔ the correction made through angular calibration of the cell, recorded in the cell; ✔ the same correction recorded in the terminal. The angular coefficient values of the cells recorded in the terminal can be changed. Proceed in the following way: ✔ press *EDIT*; ✔ enter the **N° cell to be changed** as explained in the Use of the terminal chapter of the user manual and press the EN key to confirm; ✔ enter the numerical value of the **Modified Coefficient** as explained in the Use of the terminal chapter and press EN to confirm; ✔ use the arrow ←to copy the angular coefficient values of the cells recorded in the terminal on the angular coefficient values recorded in the cells; ✔ use the arrow → to carry out the reverse operation.

Consult the Personalization chapter of the advanced user manual for all the other parameters in this menu.

14.2.9 Setup Menu/DIGITAL scale/Test/Terminal data storage

Important information for the operation of the terminal are recorded on the terminal board. This information includes the sampling data, the angular coefficients, the serial numbers and the cell addresses, etc.

These data can also be saved in the cells by means of the **Terminal data storage** item.

14.2.10 Setup Menu/DIGITAL scale/Test/Terminal data reinstatement

The cell data (sampling, serial numbers, angular coefficients, addresses) can be loaded into the terminal.

14.3 Repeater scale

14.3.1 Setup Menu/Scale/Repeater scale parameters/Serial port/String

All the parameters listed below must be selected in the same way as they were for the main terminal. Consult *par. 14.2.1 on page 3-26* .

CB	Enter the following parameters: ✔ **unit of measurement: kg,g,t,lb;** ✔ **division: 0.001, 0.002, 0.005, 0.010, 0.020, 0.050, 0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50.**
Visual	Enter the following parameters: ✔ **unit of measurement: kg,g,t,lb;** ✔ **division: 0.001, 0.002, 0.005, 0.010, 0.020, 0.050, 0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50.**
Extended	Enter the following parameters: ✔ **ranges: SINGLE, TWO MULTIDIVISION, TWO MULTIEXTENSION, THREE MULTIDIVISION, THREE MULTIEXTENSION;** ✔ **division: 0.001, 0.002, 0.005, 0.010, 0.020, 0.050, 0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50;** ✔ **capacity:** enter the numerical value as explained in the Use of the terminal chapter of the user manual; ✔ **1st range capacity:** as above; ✔ **2nd range capacity:** as above.

Consult the Personalization chapter of the advanced user manual for the other parameters in this menu.

Refer to chapters 15 and 16 of this section for maintenance and software updates.

15. SOFTWARE UPGRADE

15.1 Setup Menu/Upgrade

You can:

✔ update the program version;
✔ update the program.

In the first case, all the parameters including sampling and the archives, remain unchanged.
In the second case, the parameters, metrological data, any prints, transmissions and personalized messages do not change. However, remember that if the new program involves substantial changes to the operating mode or further parameters, the old configuration could be wrongly interpreted. This is why it is advisable to print the report before and after the update in order to make sure that the parameters are correct.
The data in archives common to both programs remain unchanged.
The logo of the terminal can be loaded and cancelled via Dialogic. It is not changed by initialization or by an update.

⚠ CAUTION ⚠

If the CPU board is replaced it may also be necessary to update the software on the new board so that it matches that of the old board.

Make sure that the installed software and board are compatible with each other.

Do not interrupt the updating procedure as this could impair the result of the downloading operation.

More detailed information is available on request from the Manufacturer.

There are two possible methods for upgrading the firmware, which are described in the following paragraphs (*par. 15.1.1 on page 3-44* and *par. 15.1.2 on page 3-46*).

15.1.1 Setup Menu/Upgrade/Serial line

To upgrade the software via serial line download, switch off the terminal and connect a serial line cable between a PC and Com 1 (see *fig. 15.1 on page 3-44*).

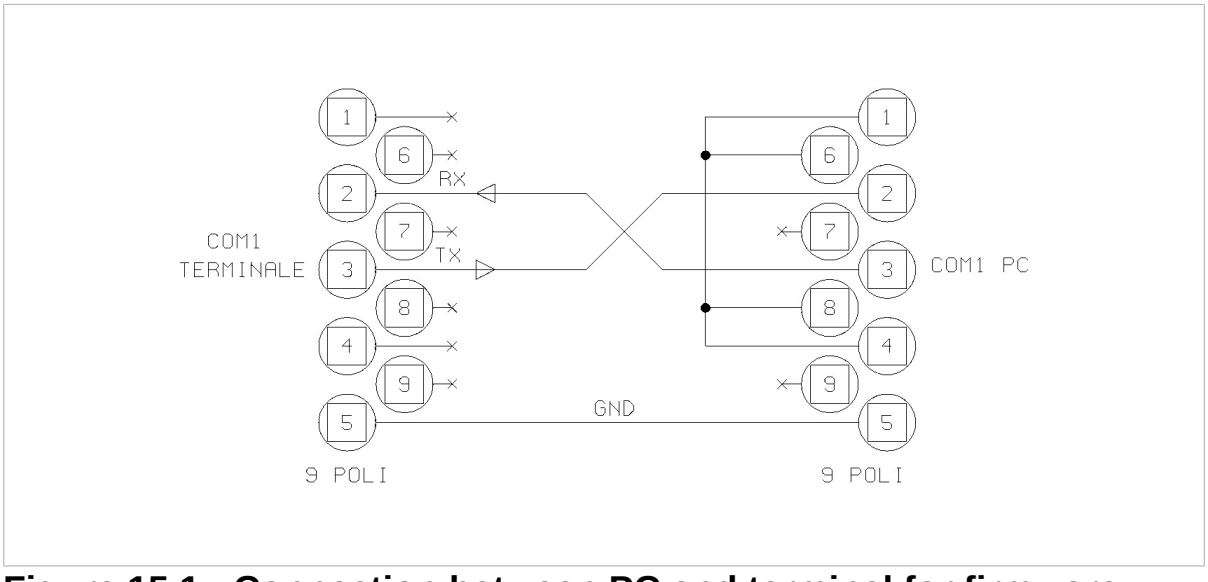


Figure 15.1 - Connection between PC and terminal for firmware upgrade *(log0151.gif)*

You will need a file containing the new software (generally the name of this file consists of the 6 digits of the program code plus the extension .a37). Locate this file on the PC. Use a program that contains the kermit binary file transfer protocol (e.g. Windows Hyperterminal).

Configure the program on the PC as follows:

✔ 38400,8,N,1;

✔ no port control.

Switch on the terminal.

Press the calibration button.

Follow the menu path:

Italian>Upgrade>Serial line>Software upgrade via serial line... CAUTION: the program will be deleted; have upgrade ready.
CONTINUE?> YES

Premendo il tasto selezionare *kermit protocol*.
The terminal launches a new program (boot program) that allows you to install the new firmware.
The terminal will give the following instructions:

Connect com01 to host, select kermit protocol, 38400, 8, N, 1 (Connect host with Kermit protocol to com1, configuration 38400, 8, N, 1)

The terminal will set on hold and give the *.waiting* message, cancelling the program it contains..
Transmit the file with the new software version from the PC by means of the Kermit procedure.
On receiving the file, the terminal displays the message *.loading*.
On completion of the transfer procedure the terminal displays *.correctly terminated: switch off.* (transfer completed successfully; switch off the terminal).
Should any error messages be displayed notify Assistance Service.
Switch the terminal off and then on again before using the new software.

15.1.2 Upgrade via upgrade board

The firmware is upgraded by installing an upgrade board. Proceed in the following way:

- ✔ switch off the terminal;
- ✔ disconnect all cables connected to the terminal;
- ✔ open the casing as shown in *par. 13.1 on page 3-7* ;
- ✔ remove the jumper P1 on the CPU board (point 1 *fig. 15.2 on page 3-47*);
- ✔ insert the upgrade card as shown in *fig. 15.3 on page 3-48* ;
- ✔ switch on the terminal;

⚠ CAUTION ⚠

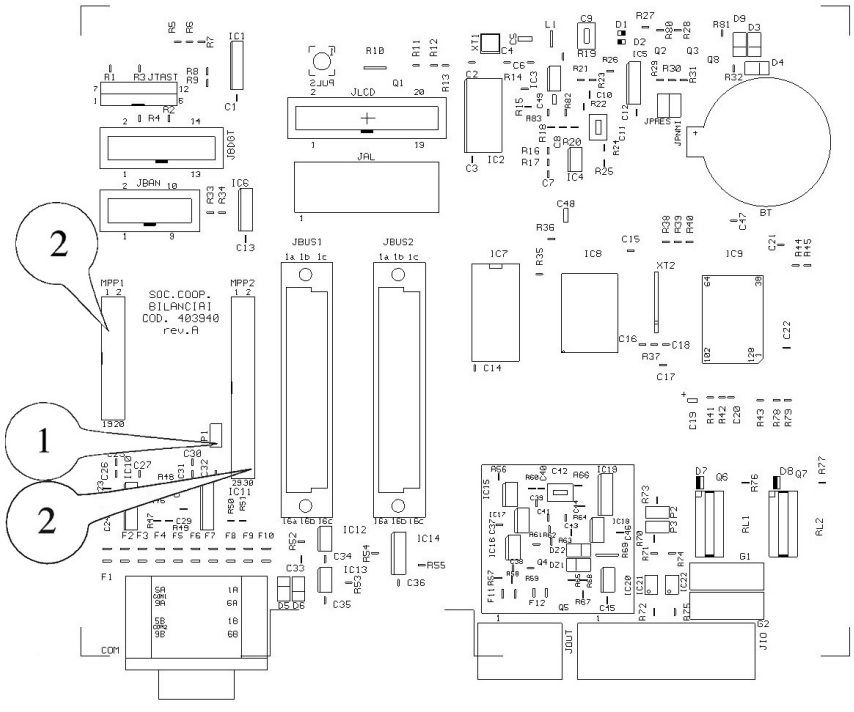
This operation exposes some parts of the internal circuitry.
Be careful not to cause accidental short-circuits!

The terminal detects the presence of program on the upgrade board and displays the message *.Upgrade software from board* . The code of the program to be installed is also displayed.

The subsequent messages indicate the successful deletion of the old program, the loading and testing of the new program.

Should any error messages be displayed notify Assistance Service.

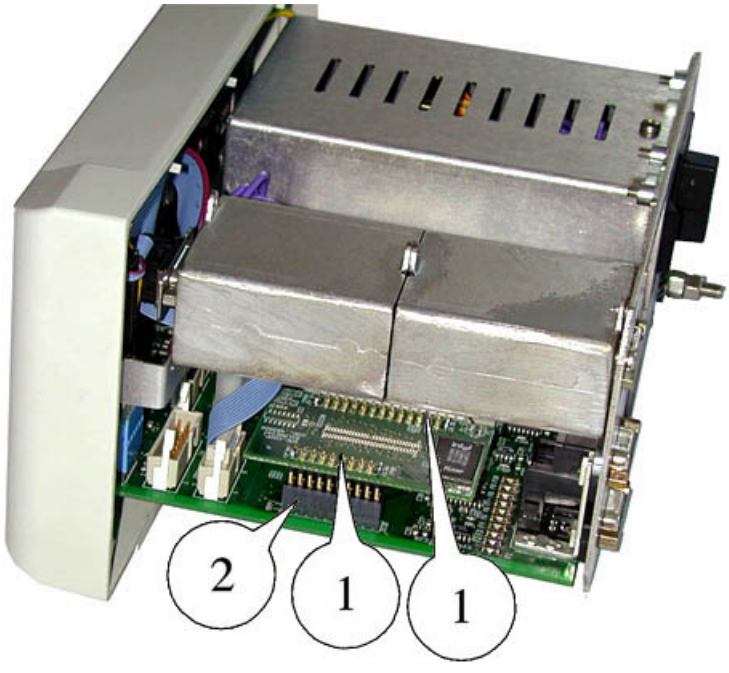
- ✔ Switch off the terminal;
- ✔ remove the upgrade board;
- ✔ replace the jumper P1 on the CPU board.



Key

1. Jumper P1
2. Connectors for upgrade board

Figure 15.2 - CPU board *(log0152.gif)*



Key

1. connectors on the upgrade board
2. connector on the CPU board (the other connector is not visible in the figure)

Figure 15.3 - Installing the upgrade board *(log0117.jpg)*

16. MAINTENANCE

16.1 Setup Menu/Maintenance

WARNING

Accessing these menu options could delete all the data in the terminal memory!

Serial number	For entering the terminal serial number: check seal labels.
Parameter report	Reserved
Initialization	**Parameters initialization**
	Restores the initial terminal configuration parameters (including calibration).
	Initialization complete
	Restores the initial terminal status as regards parameters, files and all general data.
Cancel MPP board	Returns the MPP memory board to its initial state.
Inizialize MPP codes	Returns print to initial status.
Test report	Displays results of the tests performed on the terminal during the production process.

Copy programme on board	The program can be copied on an upgrade board. Proceed in the following way: ✔ move the jumpers of the upgrade board from P3-P4 to P1-P2, turning them through 90°; ✔ open the cover of the instrument as shown in *fig. 13.1 on page 3-7* ; ✔ install the modified board as indicated in *fig. 15.3 on page 3-48* ; ✔ connect the power cable and power the terminal; ✔ press the calibration button; ✔ select the language in the Setup menu; ✔ access *Setup Menu / Maintenance / Copy programme on board* and program as instructed by the terminal; ✔ turn off the terminal once the operation has terminated; ✔ disconnect all cables connected to the terminal; ✔ remove the board; ✔ move the jumper of the board from P1-P2 to P3-P4, turning them through 90°.

Cell emergency routine	Connect one digital cell at a time to activate this. The following data are displayed for each individual cell: **baud rate**, **address**, **program code**, **serial number** and **angular coefficient**. Press the following keys: ✔ *19200*, *38400*, *115400* to modify the baud rate of the connected cell; ✔ *DEFAU.* to set the connected cell to the default status (baud rate 38400, address 0, angular coefficient FF, which corresponds to 1); ✔ *ADDR.* to enter the address of the connected cell. Consult the Use of the terminal chapter of the user manual to enter the numerical value.
Reserved	Operations restricted to terminal production process.

(*) Only with digital cell.

17. TROUBLESHOOTING

This chapter contains descriptions of the error messages that may be displayed on the terminal along with possible remedies. See also chapter Troubleshooting of the user manual.

17.1 CPU and converter faults

Problem	Cause	Remedy
-01- Converter fault	Load cell connection fault	Check extension lead, junction box, load cells
	(*) Return signal from load cell greater than approx. + 23 mV or less than approx. - 23 mV.	Check that the load cell is in good order and is working within its prescribed range
	(*) Board faulty	Check the converter board using a load cell simulator. If necessary, replace the converter board and/or the CPU.
	(**) Digital cells fail to respond	Check cell connections
-02- Parameters memory error	Error in the data contained in the parameters memory of the board	Check the linearized calibration parameters
-04- RAM checksum error	Error in the RAM	Replace the CPU board
-05- Program checksum error	Error in program memory	Replace the CPU board

-06-	(**) Serial number error on digital cell	Check serial numbers and calibrate the angles if necessary (*par. 14.2.7 on page 3-35*).
-07-	(**) Cell broken in multi-cell system	Replace cell, calibrate angles (*par. 14.2.7 on page 3-35* `Progressive calibration` or `Calibration by side`) or calibrate angles for replaced cell alone (*par. 14.2.7 on page 3-35* `Replace 1 cell`).
-08-	(**) CPU board broken	Replace CPU board, calibrate angles (*par. 14.2.7 on page 3-35*) or reset terminal data (if they were saved before the board broke).
-09-	(**) System powered for first time	Calibrate angles (*par. 14.2.7 on page 3-35*).
-10-	(**) At least one cell not configured	Calibrate angles (*par. 14.2.7 on page 3-35*).
-11-	(**) Digital cell powering fault	Check cables and power supply voltage rating.
-12-	(**) Digital cell powering fault	Replace load cell that signals the error.

-13-	(**) Cell with internal temperature off-limits (-40 to 100) °C	Replace cell that signals error. Calibrate angles for replaced cell (*par. 14.2.7 on page 3-35*).

(*) With analogue cells only.

(**) With digital cells only.

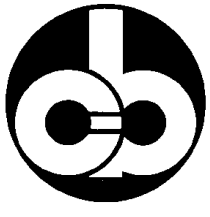
The *Diagnostics* item (see Use of the terminal chapter of the user manual) can help to establish the cause of errors when these latter concern digital cells.

17.2 Management of errors by peripheral devices

	Error -01-	Error -02-	Error -04-	Error -05-
Remote commands	??	??	NO	NO
Input	NO	NO	NO	NO
Extended string transmission	YES	YES	NO	NO
Other transmission strings	NO	NO	NO	NO
BCD calc.	FFFFF	FFFFF	NO	NO
BCD aux.	FFFFF	FFFFF	NO	NO
Output active	NOT ACTIVE	NOT ACTIVE	NO	NO
Analog.	MAX	0	NO	NO

where:

"NO" denotes "not managed";
"YES" denotes "managed";
"??" is the reply on the serial line;
"FFFFF" is the status of the outputs in hexadecimal code.



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